ATTACHMENT C
World Wide Web Sites

NGS Height Modernization Web Site can be accessed at:
http://www.ngs.noaa.gov/initiatives.shtml#HeightMod

NGS Home Page can be accessed at: http://www.ngs.noaa.gov
There NGS presents a wealth of information on its data products, software programs, and user services, as well as links to other helpful sites on the Web.

CORS and IGS Ephemeris Data can be accessed at: http://www.ngs.noaa.gov/CORS/
Information on the National CORS system and access to CORS and Precise Ephemeris data downloads are available on the NGS web site. Use the "User Friendly CORS" utility to download customized RINEX data sets and IGS ephemeris. The latest coordinate files and other metadata for each CORS site is also available. The "Data Availability" feature can be used to determine if a CORS site is missing data for a particular time period.

USCG Navigation Center GPS Web Site can be accessed at: http://www.navcen.uscg.gov/
This site provides information on the status of the GPS constellation and provides NANU message postings and notices for outages at WAAS and DGPS sites.

GPS ANTENNA CALIBRATION Site: http://www.ngs.noaa.gov/ANTCAL/
Provides information on which antennas have been calibrated.

PAGE-NT - PAGE-NT is a menu-driven suite of programs used to process GPS data and is suitable for projects requiring the highest accuracy. A User's Manual, the software, and sample data set can be downloaded from the NGS anonymous ftp server:

ftp ftp.ngs.noaa.gov
login: anonymous
passwd: your complete email address

Once logged on, go to the /pub/pnt6 directory and download all the files using binary transfer mode. The input1 and results1 directory contain the sample data sets.
Follow the setup instructions in the PAGE-NT User's Manual.

ADJUST - The ADJUST and ADJUST UTILITIES software package can be downloaded from the NGS home page (http://www.ngs.noaa.gov) by accessing the "PC Software" link. Check the web page for the latest version of each program. The software performs a least squares adjustment on horizontal, vertical angle, and/or GPS observations. The program comprises six data checking programs in addition to the adjustment software. This software package has numerous options, such as choice of ellipsoid, and includes sample input data. Also available is the source code.

ADJUST UTILITIES - Suite of programs that are used in conjunction with PC program ADJUST. This group of programs includes:

BBACCUR provides a formatted listing of the external and internal accuracies which have been computed by program ADJUST-- sorted in numerical ascending order of external accuracy. Output from program ADJUST, run with accuracies, is used as input.

CLUSTER is used to identify geodetic stations which are common to two data sets with respect to name or a given position tolerance.

ELEVUP creates a bfile which combines the bfile output from the constrained horizontal adjustment with the bfile output from the constrained vertical adjustment. This new bfile contains *80* records with adjusted positions from the horizontal and *86* records with the ellipsoidal heights from the horizontal adjustment and the orthometric heights and geoid heights from the vertical adjustment.

ELLACC computes ellipsoidal height order and class for a project. Output from program ADJUST, run with accuracies, is used as input.

MAKE86 adds *86* records to the bfile. If the existing *80* records contain orthometric heights, these are added to the new *86* records.

MODGEE scales the standard errors assigned to the observations in the gfile. Input is a gfile and the scaling factor.

QQRECORD adds qq records to the Afile (used by program ADJUST) to compute accuracies for all observed lines. Either the gfile (for GPS projects) or the bfile (for classical terrestrial projects) can be used as input.

Data Sheet Utilities -

DSDATA is the Digital Data Sheet extraction program. Extracts individual or groups of data from a DSDATA file. Includes options to extract by Station Identifier, Station Name, Area, and more.

Other Software Programs - Below is a select listing of other software that is currently accessible through the Web. For the full and most recent list of NGS programs, visit the NGS PC Software web page. On-line interactive versions of some of these programs are available in the NGS PC Software Website at: http://www.ngs.noaa.gov/PC_PROD/pc_prod.shtml

COMPGB tests the consistency and compatibility of the Blue Book B file (GPS project and station occupation data) and G file (GPS vector data transfer file).

CR8BB reformats GPS project information to fit the requirements of the National Geodetic Survey data base. The file created, which is called the B-file, contains project information, station information, and survey measurements. The CR8BB software functions independently of the type of GPS receivers used in a project.

CR8SER extracts data from a GPS Blue Book G file to create a station serial number file (serfil) for GPS observations.

WDDPROC organizes control point descriptions in accordance with the National Geodetic Survey's description file (D-FILE) format.

DSWIN is Windows-based software for data sheet viewing and extraction. It displays a list of county names as found on your CD-ROM. Click on a county and a list of stations appears. Click on a station from the list and a data sheet appears. You may save the data sheet to a file or print it. The search feature allows for filtering the station list by: Point Radius, Min/Max Box, Station Name, or PID. You can also filter by type of control, such as first-order bench marks only.

GEOID99 Computes geoid height values for the conterminous United States, Alaska, Puerto Rico, Virgin Islands, and Hawaii. Suitable for conversion of NAD 83 GPS ellipsoidal heights into NAVD 88 orthometric heights.

HTDP is a horizontal time-dependent positioning software program which allows users to predict horizontal displacements and/or velocities at locations throughout the United States. This software also enables users to update geodetic coordinates and/or observations from one date to another.

INVERSE3D is the three dimensional version of program INVERSE, and is the tool for computing not just the geodetic azimuth and ellipsoidal distance, but also the mark-to-mark distance, the ellipsoid height difference, the dx, dy, dz (differential X, Y, Z used to express GPS vectors), and the dn, de, du (differential north, east, up using the FROM station as the origin of the neu coordinate system). The program requires geodetic coordinates as input, expressed as either: 1) latitude and longitude in degrees, minutes, and seconds or decimal degrees along with the ellipsoid heights for both stations, or 2) rectangular coordinates (X, Y, Z in the Conventional Terrestrial Reference System) for each station. The program works exclusively on the GRS80 ellipsoid and the units are meters. Both types of coordinates may be used in the same computation. The program reads input geodetic positions as positive north and positive west.

LOOP determines the loop misclosures of GPS base lines using the delta x, delta y, delta z vector components computed from a group of observing sessions.